

## REMARKS

Claims 1, 2, 4-10 and 12-21 are currently pending in the application. Claims 1, 2, 4-10, 12-15 and 18-21 stand rejected under 35 USC §103 as obvious over U.S. Patent No. 5,817,263 (Taylor) in view of U.S. Patent No. 5,660,173 (Newton). Claims 1, 2, 4-10 and 12-21 stand rejected under 35 USC §103 as obvious over Taylor in view of U.S. Patent No. 6,776,944, to Kelman et al (Kelman).

Reconsideration of the rejection of claims 1, 2, 4-10 and 12-21 is requested.

The claims have been amended throughout to address form issues. As amended, the claims more clearly identify the claimed structure.

Claim 1 recites a method for producing a filter for a respirator or fan unit. The method includes the steps of: intermixing a particular granular material with a meltable polymer to produce a mixture; and molding the mixture in a connecting part having an inner surface with a complete or partial: i) groove into which the mixture is formed; or ii) tongue against which the mixture is formed so as to make a molded piece, whereby the molded piece respectively engages in or at least partially encloses the groove or tongue and the molded piece and connecting part can be operatively connected to a respirator or fan unit.

As amended, the method further includes the step of heating the mixture under pressure to make the molded piece that is adapted to work as a filter element for a respirator or a fan unit. The molding step is carried out so that the molded piece and connecting part are stably connected to form a unit that is operatively connectable to a respirator or fan unit.

Taylor discloses a molding technique wherein a particulate material in a binder is placed and solidified within an outer mold. With respect to claim 1, Taylor lacks a critical production step, that being the step of molding the mixture of a granular material and meltable polymer against an inner surface of a connecting part having a groove or tongue. In the case of a groove, the molded piece is formed to engage therein. In the case of a tongue, the molded piece is formed so as to at least partially enclose the same.

The provision of a groove and/or tongue as claimed affords a very significant advantage. In the absence of the groove or tongue, air passing through the filter is allowed to migrate at the outer interface between the molded piece and the surface of the connecting part. This is explained in detail on pages 7 and 8 of Applicant's amendment filed on June 24, 2005 herein.

In short, the objective of the groove and/or tongue is to cause air to be forced through the filtering material at this interface location. Taylor does not even address the problem of air passing through the interface without being filtered. Consequently, one skilled in the art, based upon Taylor's teachings alone, would not be taught, or motivated, to modify the structure therein to avoid this interface phenomenon. The Examiner acknowledges Taylor's deficiency in this regard throughout the Action (see for example page 2, paragraph 2).

Instead, the Examiner takes the position that "Newton teaches a respiratory filter having a connecting part with complete or partial grooves or tongue (irregular surface) on an inner surface of the connecting part (fig. 2); and using an irregular shaped inner

surface in order to create a more homogeneous and greater packing density in the bed than a smooth surface" (page 2 of Action, paragraph 2).

First of all, Newton is not concerned with a mold material consisting of particulate **that is in a binder**<sup>1</sup>. Instead, Newton is concerned with particulate material that is loosely maintained within a mold element . The mold element wall is "dimpled" to "afford greater packing density" of loose/unbound carbon particles (see Abstract). This greater packing density is achieved by sizing the dimples to approximately coincide with that of the carbon particles adjacent thereto (see col. 4, lines 25-29).

Newton does not address the problem of air passing between the outer shape of the particulate and the confining surface that is "dimpled". Based upon Newton's teachings, it does not appear that Newton's dimpled surface would have any appreciable effect in terms of forcing air through the filtering particulate, since a clear path would be available for the air to pass unfiltered through this interface region between the "irregular array of protuberances and depressions in the interior wall" (col. 4, lines 25-29).

The molding techniques in Taylor and Newton are very different. Taylor discloses a particulate in a binder that solidifies to permanently and rigidly maintain its own shape. Newton relies upon a mold element to confine loose particulate that has no definable shape other than by reason of its confinement within a mold part and the particular interaction of the particulate with the outer mold surface and itself. The considerations in forming filter elements by these processes are very different.

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<sup>1</sup>Claim 1 has been amended to emphasize this difference by further reciting the step of heating the mixture under pressure to form the molded piece.

The Federal Circuit has stated clearly that a rejection must articulate the motivation, suggestion or teaching that would have led one skilled in the art at the time of the invention to combine prior art elements to arrive at the claimed invention. The Examiner states in the bridging sentence between pages 2 and 3 of the Action that Taylor and Newton are combinable "because they are analogous with respect to respiratory filters". Applicant respectfully submits that the fact that the two references relate to filters does not make appropriate combination of teachings therefrom, without more. One skilled in the art, with Taylor's disclosure in hand, would not look to Newton or any like disclosure showing a means of holding loose particulate since the Taylor particulate is pre-mixed with a binder and solidified. The issues of homogeneity and packing density do not arise with Taylor, or if they did, would not be addressed by Newton's teachings of a "dimpled" surface.

Notwithstanding this, even if Taylor's and Newton's teachings are combined, one still does not arrive at the claimed invention. The dimpled surface in Newton does not create a corresponding "groove" or "tongue" as is claimed.

As noted in an earlier amendment, *Webster's Ninth New Collegiate Dictionary* defines groove as "a long narrow channel or depression" (our emphasis). The tongue, as set forth in amended claim 1, has a "substantial length"<sup>2</sup>. The significance of the groove or tongue having a substantial extent is that the flow at the interface is affected

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<sup>2</sup> The written description has been amended to use the exact language "substantial length". This does not represent new matter since the tongue having a "circulatory" shape inherently imparts a substantial length thereto. Further, the tongue is characterized as having a potentially full, continuous circular extent which also supports this added language.

by the groove or tongue to avoid the phenomenon whereby the air migrates between the filter material and connecting part so as to be unfiltered in that region.

Accordingly, claim 1 is believed allowable over the combination of Taylor and Newton.

The Examiner further relies on Kelman in combination with Taylor in rejecting claim 1. Applicant also submits that it would not be obvious to combine Taylor and Kelman as proposed by the Examiner. The Examiner states that the combination of Taylor and Kelman is appropriate "because they are analogous with respect to molding a material against an inner surface of a pre-form" (last paragraph on page 4 of the Action). Kelman has nothing to do with filters for the passage of a gas through an accumulated particulate. It is respectfully submitted that one skilled in the filter art would not look to prior art relating to the formation of decorative, exposed panels, as in the automotive environment. While Taylor and Kelman have commonality in the sense that they are related to molding, Applicant respectfully submits that the requisite motivation to combine teachings, as done by the Examiner, is lacking.

Once again, Taylor does not address the issue of a gas passing through an interface between particulate material and a surrounding connecting part. Kelman has nothing to do with filtering any composition. Kelman is concerned only with molding a bead 12 into a trim panel 16. Neither the bead 12 nor the trim part 16 is designed for filtration or to allow passage of a gas therethrough.

Applicant will acknowledge that aside from Kelman, there probably are many other devices that exist where a part is molded against/into a male or female form such as a tongue or groove. Claim 1, however, is not generic to any such connection, but

rather claims a specific use of a tongue or groove at an interface between an accumulated particulate and a surrounding mold surface. In spite of this art being mature and crowded, the Examiner has not cited any art related to filters that teaches or suggests the provision of a tongue or groove at a corresponding interface location that would address the problem of air passage through the filter without being forced through a filter media.

Applicant respectfully submits that claim 1 is patentable over the combination of Taylor and Kelman.

The arguments advanced relative to the allowability of claim 1, and the method recited therein, apply equally to the filter recited in claim 2.

The remaining claims depend cognately from either claim 1 or claim 2 and recite further significant structural and method limitations to further distinguish over the cited art.

As an example, a number of claims recite fasteners on the connecting part. The Examiner has broadly taken the position that "it is well-known in the molding art to attach a preform to a shell or another component by fasteners" (pg. 7, lines 17 and 18).

It is respectfully submitted that while some type of fasteners are certainly known in the prior art, the fasteners as specifically recited in certain of the claims are not taught in or obvious from the cited art.

For example, claim 4 recites at least one discrete fastener on the periphery of the connecting part. Taylor and Newton, the only disclosures directed to filters, do not teach or suggest any corresponding fastener on a connecting part that also defines the surface that confines and determines the shape of a molded mixture.

Claim 16 characterizes the groove or tongue as extending continuously in a ring shape substantially completely around an inner surface. With this configuration, substantially all of the air is caused to be directed through the filtering medium.

Only Newton discloses other than a smooth surface on a corresponding connecting part on a filter. However, the dimples do not define any tongue or groove of any appreciable extent, and certainly not one that is continuous as claimed. For this continuous configuration, the Examiner relies on Kelman, which is unrelated to the filter art and has continuity of elements for a completely different reason. Kelman would not motivate someone skilled in the filter art to modify Newton's structure to thereby change from "dimples" to continuous tongues or grooves. Newton teaches discrete dimples for a particular purpose; that being to seat individual pieces particulate of different size "to afford greater packing density" of the particles. It would be completely inconsistent with Newton's teachings to ignore the expressly described dimples, and change the same to continuous grooves or tongues that would function differently than the dimples in Newton. It is also possible that making the dimples elongate, and in the extreme, continuous, which is well beyond Newton's teachings, would defeat the intended purpose stated therein for the dimples. That is, the elongate tongues or grooves might create a continuous ledge that serves as a region in which the loose particles might hang up and cause an adverse bridging effect.

Reconsideration of the rejection of claims 1, 2, 4-10 and 12-21 and allowance of the case are requested.

Respectfully submitted,

By   
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